IN THE CLAIMS

Please cancel claims 1-7, 12, 16 and 21.

Please amend the following claims:

8. (Amended) The liquid crystal alignment film according to claim 69, wherein the molecules constituting the film contain carbon chains or siloxane bond chains.

10. (Amended) The liquid crystal alignment film according to claim 69, wherein the molecules constituting the film have Si at both ends.

11. (Amended) The liquid crystal alignment film according to claim 69, wherein the molecules constituting the film are formed by mixing a plurality of types of chemisorption molecules having different molecular lengths, and the fixed film has concavities and convexities at a molecular length level.

13. (Amended) The liquid crystal alignment film according to claim 70, wherein a plurality of types of silane-based surfactants, each having a different critical surface energy, are mixed and used as the molecules constituting the film, and the fixed film is controlled so as to have a desired critical surface energy.

14. (Amended) The liquid crystal alignment film according to claim 70, wherein the functional group for controlling the surface energy is at least one organic group selected from the group consisting of a carbon trifluoride group ($-CF_3$), a methyl group ($-CH_3$), a vinyl group ($-CH = CH_2$), an allyl group ($-CH = CH-$), an

acetylene group (triple bonds of carbon - carbon), a phenyl goup ($-C_6H_5$), an aryl group ($-CH_6H_4$ -), a halogen atom, an alkoxy goup (-OR; R represents an alkyl group), a cyano group (-CN), an amino group ($-NH_2$), a hydroxyl group (-OH), a carbonyl group (=CO), an ester group (-COO -) and a carboxyl group (-COOH).

15. (Amended) The liquid crystal alignment film according to claim 70, wherein the molecules constituting the film contain Si at the terminals.

17. (Amended) The liquid crystal alignment film according to claim 71, wherein the energy beam sensitive groups and the thermoreactive groups are introduced as side chain groups in the resin film.

18. (Amended) The liquid crystal alignment film according to claim 71, wherein the energy beam sensitive groups, the thermoreactive groups and hydrocarbon groups are introduced as side chain groups in the resin film.

19. (Amended) The liquid crystal alignment film according to claim 71, wherein the surface of the resin film has striped concavities and convexities.

20. (Amended) The liquid crystal alignment film according to claim 71, wherein the thermoreactive groups are reacted and crosslinked.

25. (Amended) The method for producing a liquid crystal alignment film according to claim 23, wherein the energy beams are at least one light selected from the group consisting of ultraviolet rays, visible rays and infrared rays, and the energy beam sensitive resin film is a photosensitive resin film.

27. (Amended) The method for producing a liquid crystal alignment film according to claim 22, wherein a solvent including a carbon fluoride group is used as a nonaqueous solvent.

30. (Amended) The method for producing a monomolecular liquid crystal alignment film according to claim 28, wherein a silane-based surfactant containing linear hydrocarbon groups or siloxane bond chains and chlorosilyl groups, alkoxysilyl groups or isocyanate silyl groups is used as the surfactant.

32. (Amended) The method for producing a monomolecular liquid crystal alignment film according to claim 30, wherein a carbon of a part of the hydrocarbon group has an optical activity.

33. (Amended) The method for producing a monomolecular liquid crystal alignment film according to claim 30, wherein the hydrocarbon group or the siloxane bond chain contains a halogen atom or a methyl group ($-CH_3$, a phenyl group ($-C_6H_5$), a cyano group (-CN), a hydroxyl group (-OH), a carboxyl group (-

COOH), an amino group ($-NH_2$), or a carbon trifluoride group ($-CF_3$) at the terminal.

35. (Amended) The method for producing a monomolecular liquid crystal alignment film according to claim 30, wherein a silane-based surfactant containing linear hydrocarbon groups or siloxane bond chains and chlorosilyl groups or isocyanate silyl groups is used as the surfactant, and a nonaqueous organic solvent containing no water is used as the washing organic solvent.

37. (Amended) The method for producing a monomolecular liquid crystal alignment film according to claim 28, wherein a film containing a large number of SiO groups is formed before the step of fixing the surfactant molecules, and then a monomolecular film is formed via this film.

40. (Amended) The method for producing a monomolecular liquid crystal alignment film according to claim 38, wherein a plurality of types of silane-based surfactants having different critical surface energies are mixed and used as the surfactant.

41. (Amended) The method for producing a monomolecular liquid crystal alignment film according to claim 38, wherein a terminal or a part of the carbon chain or the siloxane bond chain comprises at least one organic group selected from the group consisting of a carbon trifluoride group (- CF_3), a methyl group (-

CH_3), a vinyl group (- CH = CH_2), an allyl group (- CH = CH-), an acetylene group (triple bonds of carbon - carbon), a phenyl group (- C_6H_5), an aryl group (- C_6H_4 -), a halogen atom, an alkoxy group (-OR; R represents an alkyl group), a cyano group (- CN), an amino group (- NH_2), a hydroxyl group (- OH), a carbonyl group (= CO), an ester group (- COO -) and a carboxyl group (- COOH).

42. (Amended) The method for producing a monomolecular liquid crystal alignment film according to claim 38, further comprising the steps of washing the substrate with an organic solvent after the step of bonding and fixing the surfactant molecules to the surface of the substrate at one end, and tilting the substrate in a desired direction so as to drain off the solvent, thereby aligning the fixed molecules in the direction in which the solvent was drained off.

44. (Amended) The method for producing a monomolecular liquid crystal alignment film according to claim 42, wherein a silane-based surfactant containing linear carbon chains or siloxane bond chains and chlorosilyl groups or isocyanate silyl groups is used as the surfactant, and a nonaqueous organic solvent containing no water is used as the washing organic solvent.

46. (Amended) The method for producing a monomolecular liquid crystal alignment film according to claim 38, further comprising the step of forming a film containing a large number of SiO groups before the step of fixing the surfactant molecules, and then forming a monomolecular film via this film.

49. (Amended) The method for producing a liquid crystal alignment film according to claim 47, wherein the energy beam sensitive groups are photosensitive groups, and the resin film is irradiated with ultraviolet rays through a mask so that the photosensitive groups in the resin film react not only to crosslink between principal chains but also to align and fix side chain groups.

50. (Amended) The method for producing a liquid crystal alignment film according to claim 47, wherein a polarizing film or a diffraction grating is used as the mask for exposure.

51. (Amended) The method for producing a liquid crystal alignment film according to claim 47, wherein in the step of exposure, the resin film is exposed to light to an extent that concavities and convexities are generated on the surface thereof.

55. (Amended) The liquid crystal display apparatus according to claim 53, wherein the film on the surface of the substrate comprises a plurality of patterned sections each having a different alignment direction.

59. (Amended) The liquid crystal display apparatus according to claim 57, wherein the film on the surface of the substrate comprises a plurality of patterned sections, each having a different alignment direction.

Please add the following new claims:

69. (New) A liquid crystal alignment member suitable for use in a liquid crystal display, comprising:

a substrate having a first surface and electrodes;

a monomolecular film formed on the first surface of the substrate, the monomolecular film being formed of molecules that have one portion bonded to the substrate by a covalent bond and are aligned uniformly in a specific direction wherein the bonded molecules in the monomolecular film are aligned by washing the molecules with a solvent after being bonded to the substrate and tilting the substrate in a desired direction to drain off the solvent.

70. (New) A liquid crystal alignment member suitable for use in a liquid crystal display, comprising:

a substrate having a first surface and electrodes;

a monomolecular film formed on the first surface of the substrate, the monomolecular film being formed of molecules having a carbon chain or a siloxane bond chain, wherein at least part of the carbon chain or the siloxane bond chain includes a functional group for controlling a surface energy of the film, the film having a critical surface energy that is from 15 mN/m to 56 mN/m.

71. (New) A liquid crystal alignment member suitable for use in a liquid crystal display, comprising: